The Study of Coated Nanoparticles Injection in Detection of Hydrocarbon Production

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Abstract:
Coated nanoparticles display remarkable physical properties and chemical properties and thus have gotten much attention from researchers and analysts in various regions of biological sciences. Nanotechnology is the investigation of mix of science, therapeutic, building and innovation at the nano-scale level. Coated nanoparticles are utilized in variety of applications causing huge amounts of these materials be discharged into the earth. This research is directed towards the study of coated nanoparticles injection in detection of hydrocarbon production. In this research, the mobility of coated nanoparticles through low porosity sand pack was explored. The coated nanopowders were dispersed in de-ionized water and the horizontal column was stuffed with low porosity sand (30-40% porosity) of the span of 500 µm. This analysis was done with four distinctive pore volume of coated nanoparticle suspensions ranging from 0.5 PV to 2.0 PV. The column effluents were analysed using atomic absorption spectroscopy (AAS) to determine the morphology of the elements existed in the effluents. The resistivity of four different sections (metal rod 1,2, metal rod 2,3, metal rod 3,4 and metal rod 1,4) were measured using a multimeter. Supposedly, the mobility of coated nanoparticles was the smoothest in paraffin oil, trailed by saline solution water and water. This showed the transport of coated nanoparticles with oil had decrease the resistance compared to the coated nanoparticles without oil. Thus, it can be assumed that the distance transported by coated nanoparticles in the presence of oil were longer rather than the distance transported without oil.

Keywords : Coated Nanoparticles; Nanotechnology; Pore Volume; Resistivity

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